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1: Am J Cardiol. 1988 Sep 1;62(7):377-80. Related Articles, Links

Reduced thiols and the effect of intravenous nitroglycerin on platelet aggregation.

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Nitroglycerin inhibits platelet aggregation in vitro and this effect may be important in its overall mechanism of action. In addition, its use has been associated with prolonged bleeding times and hemorrhagic complications. Despite these experimental and clinical observations, no significant antiplatelet effect of nitroglycerin has been observed ex vivo during intravenous nitroglycerin administration to patients. Because the in vitro antiplatelet effects of nitroglycerin have been shown by one of the investigators participating in this study to depend on the presence of sufficient stores of reduced intracellular thiol--which are readily depleted ex vivo by nitroglycerin in the formation of S-nitrosothiols--an attempt was made to unmask nitroglycerin-mediated inhibition of platelet aggregation by exposing platelets taken from patients treated with nitroglycerin to the reduced thiol N-acetylcysteine ex vivo. The obtained data demonstrate that platelets taken from patients treated with intravenous nitroglycerin manifest attenuated aggregation responses ex vivo when thiol stores are repleted. It is therefore proposed that the mechanism of action of nitroglycerin is mediated in part by its antiplatelet effect and that this effect depends on the adequacy of reduced intracellular thiol stores.

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